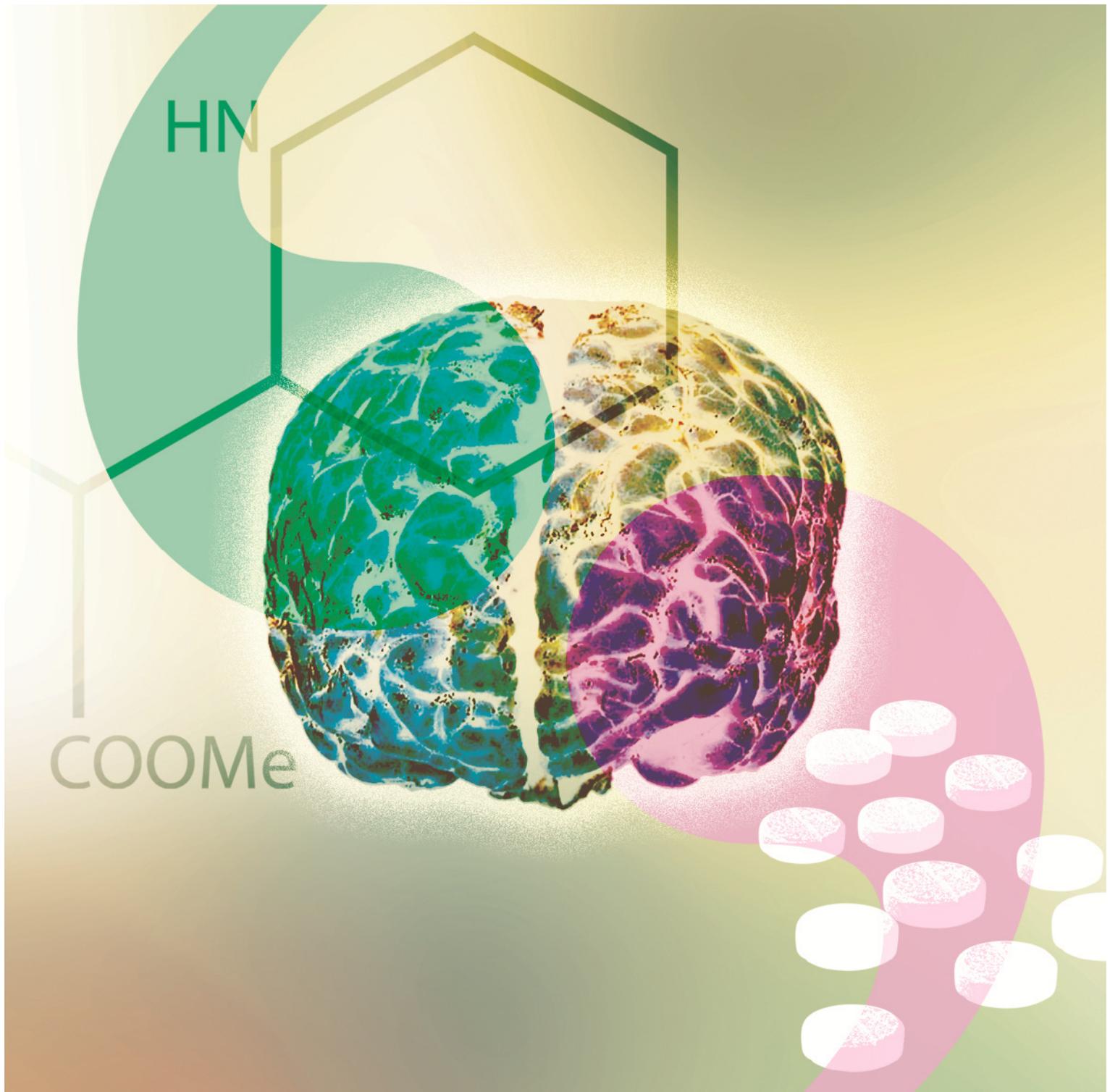
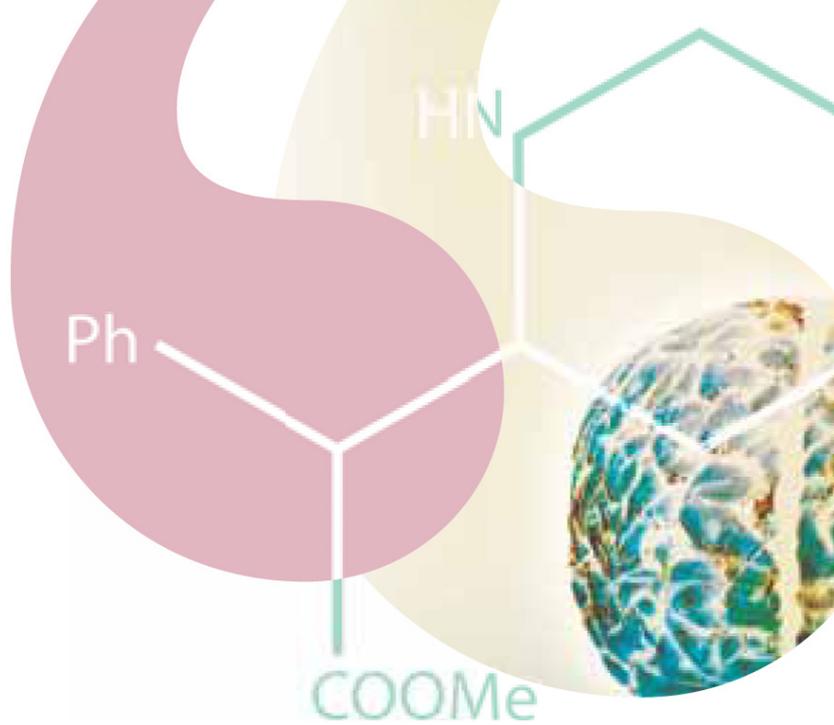


Medical enhancement

ENGLISH SUMMARY

The Danish Council of Ethics 2011





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English summary

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Definition of medical enhancement

The Danish Council of Ethics is focusing on medical enhancement as a term for those cases where people consciously take medicine for the sole purpose of performing better, e.g. in their education or their work.

The Council of Ethics wishes to promote the debate on medical enhancement at an early juncture. At the same time, the Council is providing politicians with four recommendations on the desirability of managing medical enhancement socially.

The Council of Ethics is focusing exclusively on medical enhancement as a way of improving cognitive abilities – i.e. abilities such as memory, learning and concentration.

Studies in other countries have shown that to some extent medicine for treating illness is being procured by students at e.g. universities and used as performance boosters. Studies also show that there is some shift in the general population's views on consuming medicine: more people than before find it acceptable for the individual to opt to take medicine in order to perform better, particularly in the mental fields.

In the report the Council of Ethics discusses the question of whether a trend towards the increased use of medical enhancement is desirable or undesirable. Is medical enhancement a relatively straightforward benefit in contemporary society, and is it just one of many other acceptable ways of becoming better? Or, conversely, is medical enhancement an ethically worrying development, e.g. for fairness in society or for our view of what constitutes "genuine" human accomplishments?

Ethical aspects of medical enhancement

Everyday life and working life in modern society place great demands on those very abilities that can be enhanced or optimized with the aid of medicine that affects the brain so as to increase its ability to concentrate, memorize and manage information.

On the one hand medical enhancement can be regarded as a straightforward benefit in contemporary society – possibly, for the most risk-averse, on condition that the medicine taken does not entail any major risk of side-effects. After all, we are constantly embarking on a whole raft of other endeavours to improve and develop our mental abilities. Admittedly, these are endeavours we probably think of as being more natural and more closely associated with interpersonal relations – schooling, childrearing, education, practising and rehearsing, diet etc. But although there is a difference between memory-enhancing medicine and ordinary learning, it is not certain that there is any ethically relevant difference.

On the other hand many people will undoubtedly feel an intuitive aversion to the use of medicine to consolidate and ameliorate perfectly ordinary attributes such as memory and concentration in people who are not ill in our everyday understanding of the word. There are a number of possible arguments and basic axiological viewpoints that will potentially serve to support or explode such an intuitive aversion. In the report the Council of Ethics goes into the following four basic views in depth:

1. Medical enhancement of mental functions is detrimental to fairness and justice in society. As a rule, those with already plentiful resources are the ones who will make use of medical enhancement in their educational or work lives. That is particularly true if and when pharmaceutical developments have progressed to the point where it is possible to buy one's way to far more effective enhancements than is possible today. In that way, the working and performing abilities of those who are already well-off and highly functional will be enhanced to the great detriment of those who are worse off socially, economically or educationally.
2. Medical enhancement leads to loss of authenticity, because it promotes a culture in which the actual result of a performance or a mental ability becomes the imperative thing, whereas the path taken to get there becomes of no consequence. To a great extent this can result in us as human beings ending up feeling distant from our own performances and experiences, because they are just results of targeted medical treatment, thereby undermining the person's own feeling of owning the process that is normally an integral part of the overall performance. Similarly, an enhancement culture will underemphasize or devalue the social life and learning on which valuable human achievements and relations are traditionally contingent.
3. Medical enhancement will erode valuable conditions for coexistence between people. Among other things, it is crucial to interhuman tolerance for us as humans to possess a number of characteristics and aptitudes which we ourselves do not take full credit for being endowed with. A widespread practice of medical enhancement will easily result in a lesser degree of tolerance between people, the fear being that "you have only yourself to blame" will become a common view of anyone who performs badly (after all, the person could have just bought or acquired medical enhancement).
4. Medical enhancement of mental functions can have a number of side-effects such as sleeplessness, nervousness, aggressiveness, stomach ache, blurred vision and in rare cases psychotic symptoms and heart attack. The fact that using medicine for enhancement is risky is partly due to the complexity of the brain. Figuratively speaking, biological processes and the human organism in particular contain a kind of "wisdom of nature", which we should be careful about interfering with because our knowledge of such complex processes is rather limited. By intervening in the human brain, in particular, there is a risk

of triggering unwanted effects that cannot be predicted or controlled. Deliberation of this risk must be weighed against the fact that medical enhancement is a cultural luxury, not an actual treatment or therapy.

Medical enhancement in a social context

Medicine is used as a means of combating suffering and disease that threaten our well-being in health terms. That is roughly the intuitive understanding of medicine which most of us have without thinking about it more closely.

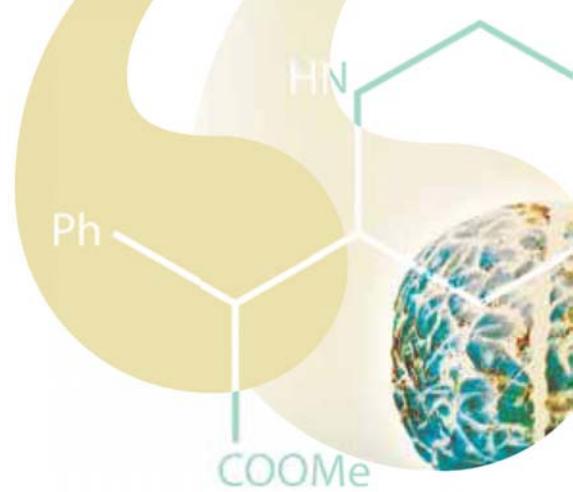
But at the start of the 21st century a technological development and a change in consumption habits can be observed in relation to taking medicine – a change that challenges our understanding of medicine as something we use exclusively to treat obvious suffering or disease with. We call this tendency *medical enhancement*.

Specifically, this is about more recent types of medicines, which in a more targeted way than previously are able to affect the processes in the brain that influence our mental life, e.g. frame of mind, memory or concentration. The debate on medical enhancement is animated in the USA, Europe and here in Denmark, centring on a small handful of medicine types which have been developed for use in connection with recognized diagnoses but to varying degrees have also proved capable of making a difference to people taking the medicine to improve their mental faculties, e.g. for the purpose of performing in an educational context.

These are medicines like SSRI drugs (antidepressants, popularly known as “happy pills”), modafinil under the product names Modiodal, Cephalon and Modafinil (used to treat narcolepsy, i.e. the morbid urge to sleep) and methylphenidate under the product names Ritalin, Concerta, Equasym Depot, Medikinet and Motiron (used among other things to treat ADHD, a behavioural disorder characterized by attention deficit and hyperactivity).

The Danish Council of Ethics acknowledges that the studies already conducted on people’s willingness to use medicine as an enhancer and on healthy people’s actual use of that kind of medicine can at most be regarded as indicative of a trend in progress.

In themselves the studies do not prove that medical enhancement is set to become a widespread practice. At the moment methylphenidate (Ritalin) is the type of medicine most talked about. Ritalin is prescribed particularly for the treatment of children who have been diagnosed with ADHD – these are children suffering from hyperactivity and attention disorders to such an extent that it causes them severe difficulties in their everyday and social lives and in their development.



There are primarily three reasons why Ritalin is a hotly debated example in discussions about medical enhancement:

Firstly, studies in the USA show a tendency for students attending the universities to procure Ritalin without a prescription and take the medicine to increase their concentration with the aim of achieving better results in their studies and exams.

Secondly, Ritalin is a type of medicine with a proven, documented track record of improving the ability to concentrate in people who do not have a diagnosed disorder.

Thirdly, there has been very vigorous growth in the number of people undergoing medically prescribed treatment with Ritalin. During the past 10 years Denmark has seen a tenfold increase in the number of people being treated with Ritalin – from 2,000 in 2000 to almost 25,000 on treatment in 2009.

The Danish Institute for Rational Pharmacotherapy has pointed out that, in particular, the increase in Ritalin consumption among boys aged between 10 and 19 should be monitored attentively, as they consider that not all of the sharp rise can be explained rationally – i.e. the rise includes cases that involve either overmedication or medication not necessarily given on health grounds.

The Council of Ethics is taking a position on medical enhancement primarily as something intended by the individual. But there is no denying that there are many borderline cases where the use of medicine is debatable, even though the person's background is to go to their doctor because they feel sick and thus attend with the form of health-related symptoms which, based on our everyday understanding, makes it relevant to seek medical advice.

People consulting a doctor with a problem they perceive to require investigation or treatment attend with widely varying backgrounds and widely divergent symptoms and experiences. In many perfectly ordinary situations, the medical treatment that is well-founded in purely health terms will depend on the doctor's evaluation in partnership with the patient's wishes and approach.

There are grey areas here, unquestionably, where opinions – including professional, medically founded opinions – will differ as to whether a particular treatment is a cure for a disease or rather should “just” be seen as an aid to enhancing the patient's everyday existence.

In Denmark, however, it must be said that the doctor, with his or her specialist judgment, is the supreme judge of whether a patient actually has a problem that can be treated medically with proper justification. That is to say that the doctor per se actually defines the patient's problem as a health matter at the moment he or she initiates treatment. Therefore, the doctor's practice contains grey are-

as and dilemmas in terms of medical enhancement.

Is it, for example, a case of treating an illness, or is it more correct to describe it as medical enhancement if a doctor prescribes a sedative or concentration enhancer for a young person voicing their nervousness to the doctor about attending an exam? Is it a case of treatment for an illness or medical enhancement of normal attributes if a doctor prescribes psychopharmaceuticals for a patient who is nervous and occasionally starts to cry without reason but has no actual depression? These are two examples in the domain of a grey area. Examples in this grey area can be called “*medical enhancement based on a perception of illness*”.

The health services and the relationship between medical practice and people’s understanding of health can be said to be important to what is already accepted, and what will be accepted in future, as conditions that can or should be treated with medicine.

An obvious example of this is found in the USA. Here, in the journal *Nature*, a group of reputed researchers argued in 2008 in favour of regulating medical enhancement on the basis of fundamental approval – i.e. that it should be legal to use and prescribe e.g. Ritalin for use in promoting performance among university students.

This was subsequently followed up by the American Academy of Neurology, which approved new guidelines issued by the association’s ethical committee. The guidelines establish the ethical and legal defensibility of a doctor prescribing medicine outside the range of indications and for the purpose of medical enhancement. This is because the association believes that medical enhancement (“neuro-enhancement”) should be compared with e.g. cosmetic surgery. Both medical enhancement and cosmetic surgery are medical treatments that do not belong to the doctor’s core remit. But they are procedures which, from both an ethical and a legal point of view, the doctor is allowed to carry out while being accountable for the treatment having been provided in accordance with ordinary medical standards and principles.

In Denmark opinion polls show that there is mounting acceptance of the use of medicine to enhance mental abilities. One may wonder whether part of the drastic increase in the prescription of Ritalin to individuals diagnosed with ADHD may have been caused by society’s increased requirement for mental performance. If that is the case, there may be a correlation between the trends of the period that give rise to increased general acceptance of performance-enhancing medicine and the growing diagnosis of behaviourally defined disorders.

There are two reasons for describing what we call intended medical enhancement here in the context of the “*medical enhancement based on a perception of*

sickness” mentioned above. Firstly, developments in medicine prescription and diagnosis have a bearing on where to place the conceptual boundary between normal conditions and those requiring therapy, and that boundary will usually factor tacitly into our day-to-day expectations of what doctor-prescribed medicine can help us with. Secondly, assuming the person is also healthy in their own self-image, it is an open-ended question whether intended medical enhancement will eventually become more and more identical with “medical enhancement based on a perception of sickness”. There is no dismissing, for instance, that a mediocre ability to concentrate in a fiercely competitive society can, with time, potentially be regarded as suffering and illness which it is appropriate to treat with medicine.

Thus the connection between *intended medical enhancement* and the medical practice of prescribing medicine for behaviourally defined disorders is linked to two possible developments in the future: Firstly, it is conceivable that, in the future, what is currently perceived as conscious enhancement will increasingly be perceived as treatment of illness or at least help to meet vital needs in an ordinary workaday life. Secondly, our actual perception of what the medical system can and should help with may possibly change in step with the pharmacological possibilities.

Four recommendations from the Danish Council of Ethics

1. Public debate on medical enhancement

The Council of Ethics advocates generating public debate on medical enhancement. Among other things, the Council considers it essential to bring different perspectives to bear on the subject in order to thereby identify the tenability of the concerns involved and the correlation between society's requirements and the individual's desire or need for self-enhancement. The Council further deems it necessary to create clarity around the need for an investigation into the use of medicine for enhancement in Denmark, just as in the Council's view there is a need to discuss whether there is consistency between the views on, respectively, performing medical enhancements and consuming other substances with major side-effects, e.g. alcohol, cigarettes and unhealthy foods.

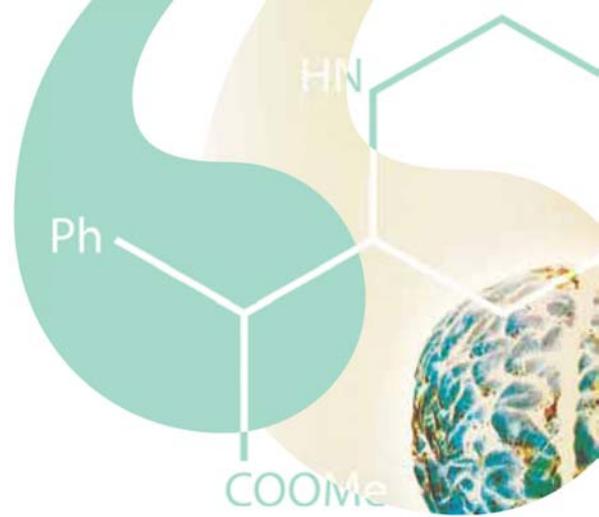
2. Centres of education and workplaces to be encouraged to introduce a policy in the field

The Council of Ethics would point out that, with time, the use of performance-enhancing medicine at educational establishments and some types of workplace may create an environment and pressure reminiscent of the pressure to which people can be exposed in terms of using doping as an elite sports practitioner or as a bodybuilder at a gym.

The Council thinks that performance in the context of education should be nurtured and effected in a social, human community where the individual has an opportunity to enhance his or her own talents and abilities to acquire new knowledge and new skills without having to resort to the use of medicine for enhancement.

Advancing medical performance at educational establishments will be detrimental to a good educational environment in several ways. Like doping in the world of sport, it will result in an unfair basis for assessing those pupils who wish to manage without performance-enhancing medicine. In addition, it will render examinations less suitable as a means of signalling the extent to which a student will be capable of discharging different functions in the surrounding society by virtue of his or her education.

In general the Council feels that increased social acceptance of performance-enhancing agents will have adverse consequences for our view of humanity and undermine some fundamental values that are prerequisites enabling us as humans to enjoy smooth-functioning and mind-broadening fellowship with one another. These are basic values like tolerance and recognition. As a possible route to improved performance in workplaces or examinations, medicine will create meagre conditions for the viability of these two values. For why is there any reason to tolerate different talents and different degrees of performance skills if the individual could just have used medicine to deliver a better performance? And conversely, what reasons will there ultimately be for acknowledg-



ing exceptional performance if it is due “just” to the individual having had the right medicine to hand?

In other words, therefore, because of both the unfair competition and the potentially subversive effects on our view of humanity, some members are encouraging workplaces and educational establishments to introduce rules on medical enhancement. Presumably then, the need at educational establishments is primarily to safeguard “exams free from brain doping”. In this respect the rules can be integrated in locally adopted regulations concerning the holding of exams etc., for instance, as such rules can then serve to mark the establishment’s attitude towards the problem, and do so even if it is not wished to take urine or blood samples from students to check whether any misuse has taken place.

Some of the Council’s members further encourage both workplaces and centres of education such as universities and upper secondary schools to initiate information and debate campaigns on the topic.

3. Separate legislation on medical enhancement

Some members of the Council of Ethics think that Danish Parliament should make separate attempts to prevent or at least limit the use of medicine to enhance healthy people’s mental abilities, using legislative means. Said members think it will be relevant to introduce a ban on manufacturing, possessing and trading in medical enhancement agents unless for therapeutic purposes.

There is currently a law in existence, with good reason, forbidding the manufacture, possession and trading of certain doping agents for use in the sporting and athletic world (“Danish Act on Prohibition of Certain Doping Agents, Act No. 352 of 6 May 2009”). Danish Parliament had additionally passed a law to promote doping-free sport (Act No. 430 of 29 May 2008). Under this act the independent government-subsidized institution Anti Doping Denmark was set up.

Some Council members think there are key points of similarity between doping in sporting and exercise contexts and the form of “brain doping” that may possibly be in the process of becoming established as a socially acceptable practice among employees in different companies and students at Danish educational establishments.

The first obvious parallel is that the unchecked use of Ritalin or similar central nervous system (CNS) stimulants may be subject to severe side-effects, although this is more poorly documented than in the case of doping agents used in the sporting and exercise world. Possible and known side-effects may include dryness of the mouth, palpitations, sleeplessness, nervousness, aggressiveness, stomach pains, blurred vision and in rarer cases psychotic symptoms and heart attack. Furthermore, a habit-forming effect cannot be dismissed.

The other obvious parallel is that the surrounding environment and demands placed on the sports practitioner or bodybuilder combine to pressure them into taking doping agents—exerting pressure in some ways reminiscent of what employees and students can be exposed to. In this context it is also important that the use of Ritalin in revising for exams occurs not merely at universities, but according to the press at upper secondary schools too, where a proportion of the pupils are under 18. Hence, like gyms and fitness centres and elite athletics, these are environments frequented by very young people on a daily basis during a phase of life when their bodies are developing and their identities are forming.

The similarities mentioned between doping in the sporting world and medical enhancement in everyday life lend relevance to the introduction of a similar ban on the manufacture and possession as well as trading in medicine when the purpose is to use it for medical enhancement or, to put it in popular terms, “brain doping”.

The Danish Act on Prohibition of Certain Doping Agents was specifically adopted to meet the “European Anti-Doping Convention”. At the European level, some Council members think it will be desirable to introduce a similar European convention to combat medical enhancement in everyday life (including work and education).

The Council of Ethics thinks it will be useful to instigate a study into the scope of medical enhancement or brain doping at Danish educational establishments and workplaces with the aid of qualitative and quantitative studies.

4. The range of indications for performance-enhancing medicine should be emphasized

The above recommendation on regulation by law concerns the use of prescription CNS medication “off-label”, i.e. in situations where the medicine has not been prescribed by a doctor for the person taking the medicine.

It is true to say that in the Danish system, by definition, prescription medicine taken “off-label” ought to be regarded as medicine not used for health purposes.

Some of the Council of Ethics’ members think that it should be impressed upon doctors that medication like Ritalin and modafinil, which can be used as performance-enhancers, should only be prescribed within the range of indications stated on the patient information leaflet or insert. The text on the insert is approved by the Danish Medicines Agency, and the range of indications denotes the range of illnesses which the medicine has been approved to treat by the Medicines Agency.

The purpose of highlighting the range of indications for the CNS agents mentioned is to provide doctors with increased support from society to allow them to

dismiss patient requests not rooted in sickness or vital health-conditioned obstacles to the individual's quality of life.

Overly far-reaching prescription of potentially performance-enhancing agents can lead to medical enhancement by pathologizing a failure to perform in education or at work. Therefore, the Council of Ethics' members mentioned feel there is cause to impress upon doctors and health professionals that medicines such as Ritalin and modafinil should be prescribed with caution and with a restrictive assessment of conditions that should be perceived as an illness and hence something for which treatment can be offered. The ethical justification for such emphasis is partly that some members are concerned about this narrowing of the limits of what is normal, making it common to consult a doctor because of a wish for help with e.g. improved performance in examinations. For the same reasons it is recommended giving consideration from political quarters to implementing closer monitoring of prescription practice for the types of medicine mentioned.

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